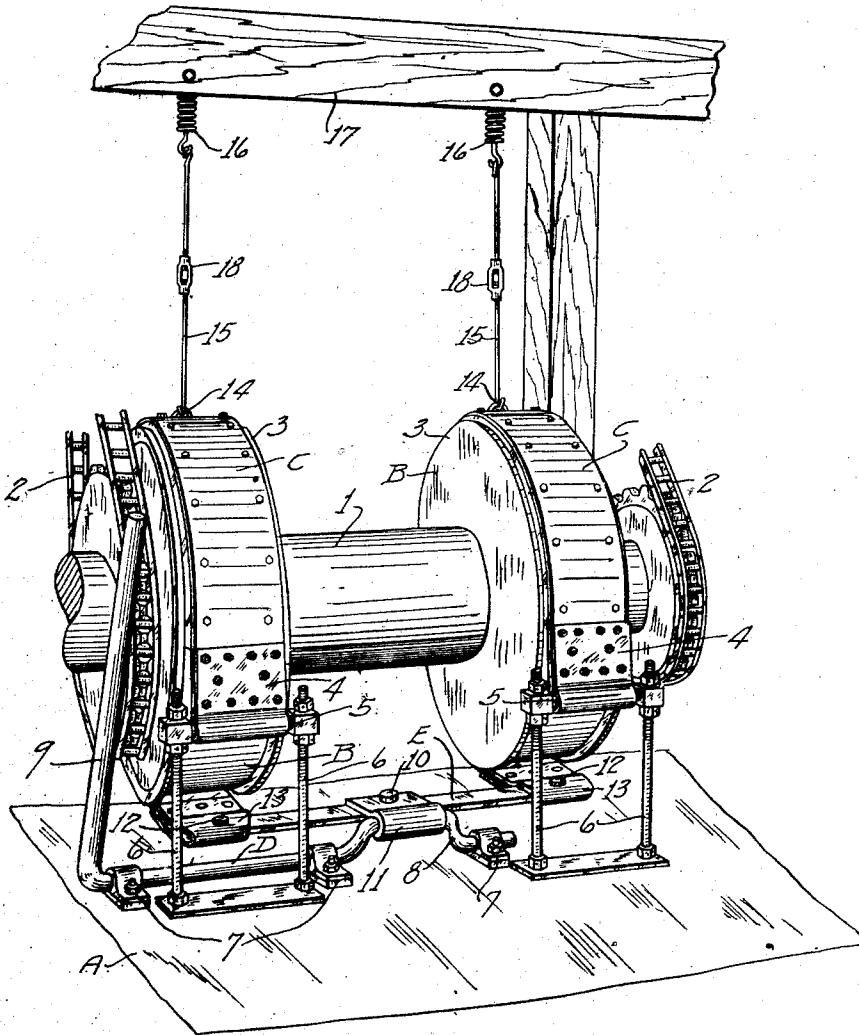


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H. M. HARRIS
BAND BRAKE EQUALIZER
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BAND-BRAKE EQUALIZER.

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This invention relates generally to band-brakes and, more particularly, to a certain new and useful improvement in band-brake equalizers.

5 Forming part of present day rotary oil or water drilling equipment, is a machine, commonly termed a "draw-works", employed in lowering the pipe for drilling into the ground and in lifting the pipe out of the ground to afford convenient opportunity for repairs or replacements of the cutting tools carried by the drill-stem. In lowering the pipe into the ground, it is today the general practice, so far as I am aware, to permit the weight of the pipe to unwind the cable from the drums of the "draw-works" and, by means of band-brakes, lock or brake the drums to prevent, when desired, further unwinding of the cable. In lowering the pipe to great depths, the constant and repeated application of the band-brakes effects, especially when, as is often the condition, the bands have unequal braking-pull upon the drums, a heating of the drums to such an extent that breakage is a very frequent occurrence. Many efforts and means have heretofore been made and tried to overcome this breakage, but, so far as I am aware, without avail or success.

30 The chief object of my present invention is hence to obviate such overheating and resulting breakage of parts and, to such end, my invention resides in the provision of brake equalizing means so constructed and operating to insure that neither drum will get more than its portion of the load and thereby cause an excess of overheating, and in the novel features of form, construction, arrangement, and combination of parts hereinafter described and pointed out in the claims.

In the accompanying drawing, the figure illustrates in fragmental perspective a drilling "draw-works" embodying band-brake equalizing means of my invention.

Referring now more in detail to the drawing, which illustrates a preferred embodiment of my invention, A designates a flooring, platform, or the like, suitably supported upon which for rotation in standards, not shown, is a shaft having driven connection by means of chains 2—2 with a suitable source of power.

Fixed on shaft 1 in spaced relation, are

brake-drums B, B, each formed preferably with peripheral flanges 3, 3. Disposed intermediate the flanges 3 in encircling relation upon the peripheries of the drums B, B, are brake-bands C, C, of split resilient type, provided upon their inner peripheral faces, as is usual, for drum-engagement with suitable friction-lining, each respective band C having its one or upper, so-called dead, end suitably fixed, as at 4, to a cross-bar 5 rigidly supported over, and in fixed connection with, the floor or platform A by means of a pair of suitably spaced upstanding rods 6—6.

Mounted for oscillatory movement in bearings 7 fixed on floor or platform A preferably intermediate the bolt-bars 6 and the shaft 1, is a brake-lever D having an intermediate stirrup-portion 8 and a suitably upstanding actuating end-portion 9; and interposed between, and pivotally connected intermediate its ends, as by a pin 10, to the ends or legs of a substantially U-shaped clip 11 loosely fitting at its bight upon the stirrup-portion 8 of lever D, is a preferably flat equalizer-bar E. Disposed and pivotally fastened, as by pins 12, upon the opposite ends of the bar E, are additional substantially U-shaped clips 13, 13, to the ends or legs of which the bands C at their other or lower, so-called pull, ends are riveted or otherwise rigidly fixed.

In use or operation, it will be evident that, when end-portion 9 of brake-lever D is suitably actuated—turned down, the braking load or pull is applied upon the bar E and then through lateral shifting of the bar E to and upon the pull-ends of the bands C and the bands C thus tightened circumferentially upon or drawn into braking clutching engagement with the drums, the bands C, through their pivoted connection with the bar E and through the pivoted connection between the bar E and brake-lever D, automatically, in such tightening or clutching operation, adjusting themselves and taking equal pull upon the drums B.

Having preferably hook-connection, as at 14, with the bands C, are rods 15 yieldingly connected at their upper ends, as by coil-springs 16, with the "draw-works" frame 17, for retracting the bands C out of clutching or braking engagement with the drums on release of the band tightening-

means. It will be obvious that the springs 16 permit the rods 15 to yield on braking actuation of the lever D, any required adjustment in the length of the rods 15 being readily effected by means of interposed turn-buckles 18.

My new band-brake equalizing means is relatively simple in form and construction, is conveniently and readily operated, and is exceedingly effective and efficient in the accomplishment and performance of its intended object and functions. It will be evident that, if the pin 10 should shear off or break through wear or other cause, the bar E, in its connection with the bands C, would continue to hold the bands C from becoming displaced upon the drums B, and that, further, the bar E, both through its form as a flat plate and in its connection with the brake-lever D and the bands C, will not sag when the brake-lever is not in use or in "off" position and functions also to hold the bands C from dragging at their lower or pull ends upon the floor or platform A.

I am aware that changes in the form, construction, arrangement, and combination of the several parts of my brake-band equalizing means may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In combination with a pair of rotatable

drums and split resilient bands fixed at their dead ends in encircling disposition upon the peripheries of the drums, of means for circumferentially tightening the bands in unison and with equalized pull upon the drums, said means including an oscillatory lever, a bar, a U-shaped clip having pivoted connection at its legs with, and intermediate the ends of, the bar and loosely at its bight encircling the lever, and a pair of U-shaped clips rigidly fixed at their legs to the free pull ends of the bands and having pivoted connection at their bights with the opposite ends of the bar.

2. In combination with a support, of a shaft mounted for rotation upon the support, a pair of drums fixed in spaced relation upon the shaft, split resilient bands disposed in encircling relation upon the peripheries of the drums and having their upper dead ends connected to said support, and means for circumferentially tightening the bands in unison and with equalized pull upon the drums, said means including an oscillatory lever, a flat bar, a U-shaped clip pivotally connected at its legs with, and intermediate the ends of, the bar and loosely at its bight encircling the lever, and a pair of U-shaped clips rigidly fixed at their legs to the free pull ends of the bands and having pivoted connection at their bight with the opposite ends of the bar.

In testimony whereof, I have signed my name to this specification.

HUGH M. HARRIS.